DOCUMENT RESUME

ED 267 368 CG 018 949

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TITLE Behavioral, Affective, and Cognitive Differences between High and Low Procrastinators as an Academic Deadline Approaches.
PUB DATE Nov 85
NOTE 13p.; Paper presented at the Annual Meeting of the Association for Advancement of Behavior Therapy (Houston, TX, November 14-17, 1985).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement; Attribution Theory; Behavior Patterns; College Students; *Females; Higher Education; *Self Evaluation (Individuals); *Sex Differences; Student Behavior; *Study Habits; *Test Anxiety
IDENTIFIERS *Procrastination

ABSTRACT

Previous research has shown that college students often report problems with procrastination on academic tasks. A study was conducted to investigate factors related to academic procrastination. Subjects (N=379) completed the Procrastination Assessment Scale on measures of test anxiety, attributions, and self-control. A subset of subjects (N=125) participated in weekly assessment sessions before, during, and after midterms. The results revealed that subjects who reported self-procrastination demonstrated behavioral delay and did less well academically than did non-procrastinators. Females and high procrastinators were more likely to report test anxiety. High procrastinators were more likely to attribute success on exams to more external and fleeting circumstances compared to low procrastinators. Cognitions of all students were greatly affected by proximity of upcoming exams. High procrastinators and females perceived themselves as having less delay of gratification, lower self-efficacy, and less control over emotional reactions. (ABL)

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BEHAVIORAL, AFFECTIVE, AND COGNITIVE DIFFERENCES BETWEEN HIGH AND LOW PROCRASTINATORS AS AN ACADEMIC DEADLINE APPROACHES

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Presented at the Annual Convention of the Association for the Advancement of Behavior Therapy, Houston, Texas, November 1985.

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GOALS OF THE PRESENT STUDY

Previous research (Solomon & Rothblum, 1984) indicated that nearly one quarter of college students reported problems with procrastination on such academic tasks as writing term papers, studying for exams, and keeping up with weekly readings. Furthermore, there was a significant positive correlation between self-reported procrastination and a variety of clinical factors such as depression, trait anxiety, and irrational cognitions, and a significant negative correlation between procrastination and self-esteem. These findings suggest that procrastination is more than a study skills deficit, but includes cognitive-affective components.

To further investigate psychological factors that may relate to academic procrastination, the present study had the following goals:

1. To examine the relationship between academic procrastination and (a) test anxiety (affective variable); (b) attributions of academic success and failure (cognitive variable); and (c) self-control (behavioral variable).

2. To assess procrastination as a process over time in order to detect differences between high and low procrastinators as a deadline approaches. Introductory psychology students were assessed at three weekly intervals during the midterm exam period of the semester. The weekly questionnaires again measured affective, cognitive, and behavioral variables hypothesized to be related to procrastination.

3. To validate the self-report measure of academic procrastination against: (a) subjects' date of completion of self-paced quizzes in Introductory Psychology (behavioral measure of procrastination); and (b) subjects' grade point average for the semester (behavioral measure of academic performance).

SELF-REPORT MEASURES

Affective Measures

Trait Measure:
- Test Anxiety (Sarason, 1972).

Weekly State Measures:
- Weekly State Anxiety (Spielberger State-Trait Anxiety Inventory, State Version).
- Weekly Anxiety-Related Physical Symptoms (modified from Fenz, 1967).

Cognitive Measures

Trait Measure:
- Attribution Scale (modified from Russell, 1982), that includes six subscales:
  - Success Attributions - Internality/Externality
    Stability
    Controllability
  - Failure Attributions - Internality/Externality
    Stability
    Controllability

Weekly State Measures:
- Weekly midterm appraisal (the degree to which midterms are perceived to be difficult, important, and anxiety-provoking).
- Factors that hindered effective study:
  - Fear of Failure
  - Task Aversiveness

Behavioral Measures

Trait Measure:
- Rosenbaum Self-Control Schedule (Redden, Tuckey, & Young, 1983)
- Procrastination Assessment Scale - Students (PASS; Solomon & Rothblum, 1984).

Weekly State Measures:
- Weekly Procrastination
- Weekly Study Behavior

MEASURES OF ACADEMIC DELAY AND PERFORMANCE

Academic Delay: Number of weeks into the semester that subjects took their tenth self-paced quiz. Subjects who took this quiz later in the semester were considered to be greater procrastinators.
Academic Performance: Subjects' grade point average for the semester.

PROCEDURE

During an experimental session, 379 subjects completed the Procrastination Assessment Scale - Students and the three other trait measures. The subset of 125 subjects selected to participate in the weekly assessment sessions was assessed the week before midterms (Session 1), the week during midterms (Session 2), and the week after midterms (Session 3). Much of the questionnaire data was retrospective, asking subjects to rate their performance during the past week.

RESULTS AND DISCUSSION

Frequency of Self-Reported Academic Procrastination

Students who reported on the Procrastination Assessment Scale - Students that they nearly always or always procrastinated on studying for exams and that such procrastination nearly always or always made them feel anxious were considered high self-reported procrastinators. All other subjects were considered low procrastinators on this task. A total of 154 out of 379 subjects (40.6%) scored high on procrastination using these criteria. Of these subjects, 37 out of 117 males (31.6%) and 117 out of 261 females (44.8%) met criteria for high procrastination. The remaining 225 subjects (80 males and 144 females) were classified as low procrastinators.

Relationship of Academic Procrastination to Quiz Delay and Grade Point Average

Self-reported procrastination was positively correlated (r=.15, p .005) with delay on self-paced quizzes. Thus, subjects who reported that they procrastinated also tended to demonstrate behavioral delay. Self-reported procrastination was negatively correlated (r=-.22, p .001) with grade point average for the semester. Subjects who reported procrastination performed less well academically than did non-procrastinators.

Comparison of Academic Procrastination With Related Affective, Cognitive, and Behavioral Trait Measures and Weekly State Measures

Analyses of variance were performed for self-reported procrastination (high versus low) x gender, on all academically-related trait measures. Significant effects and means of these measures are displayed on Table 1. Repeated measures analyses of variance were performed for self-reported procrastination (high versus low) x gender x session (1, 2, and 3) for the subsample of subjects who were assessed at weekly intervals. Sixty-five subjects out of 125 in this sample (51.6%) met criteria for high procrastination. Specifically, 11 out of 34 males (32.4%) and 54 out of 91 females (57.4%) met criteria for high procrastination. The remaining 61 subjects (23 males and 37 females) were considered to be low procrastinators. Significant effects and means are displayed on Table 2.

Affective Measures. Both females and high procrastinators report more test anxiety. High procrastinators are also more likely to report weekly state anxiety, and the interaction of gender and procrastination on this measure yields a significant effect for females. Similar results are obtained on the measure assessing weekly anxiety-related physical symptoms. Both high procrastinators in general and female high procrastinators in particular are more likely to report the presence of physical symptoms. Furthermore, a significant three-way interaction of procrastination and gender with session indicated that female high procrastinators reported more anxiety-related physical symptoms during the last session than did male high procrastinators. The absence of a significant main effect for session indicates that anxiety remains fairly stable over time. Thus, low procrastinators do not report much anxiety at any time as midterm exams approach, whereas high procrastinators (particularly women) report stable levels of high anxiety across sessions.

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Cognitive Measures. High procrastinators are more likely to attribute success on exams to more external and fleeting circumstances, compared to low procrastinators. Solomon and Rothblum's (1984) research indicated a negative correlation between academic procrastination and self-esteem. The results of the present study suggest that this may be due to high procrastinators attributing success to unstable factors rather than to their own ability or effort. In this way, they cannot take credit for success or validate their own competence. It is interesting that there was no significant effect for procrastination on any attributions of failure (either internality, stability, or controllability). Possibly, some high procrastinators are attributing failure on tests to lack of effort (internal) and others to situational factors (external). In either case, procrastination may protect individuals from a true test of their abilities.

The weekly cognitive measures indicate that both high and low procrastinators are affected by negative appraisal and hindering factors before exams. There were significant main effects for session on weekly midterm appraisal, fear of failure as a hindering factor, and task aversiveness as a hindering factor. Thus, during the first session, students view exams as difficult, important, and anxiety-provoking; regard fear of negative evaluation, perfectionism, and low self-confidence to hinder effective study; and view the aversiveness of the task to hinder effective study. These negative cognitions decrease with each subsequent session.

Not only are students in general affected by negative cognitions, but also there are no significant main effects for procrastination on any weekly cognitive measure. Furthermore, the significant interactions for procrastination and gender indicate that no one simple effect accounts for these interactions. Only on the measure weekly midterm appraisal did we find a significant effect for procrastination, gender, and session, with male high procrastinators reporting the exams to be less important, difficult, and anxiety-provoking during the second and third sessions than did any other group of subjects. However, there were only 11 male high procrastinators in our subsample of subjects who were assessed at weekly intervals, so this result should be interpreted with caution. Basically, our results indicate that cognitions of most students (regardless of whether they procrastinate) are greatly affected by the proximity of upcoming exams and decrease once exam deadlines are close.

Behavioral Measures. Results for the self-control measure indicated that high procrastinators and females perceive themselves to have less delay of gratification, lower self-efficacy, and less control over emotional reactions. Not surprisingly, high procrastinators also report more weekly procrastination. Again, this effect is particularly true for female high procrastinators.

The weekly behavioral measures indicate that weekly procrastination and a low frequency of study behavior occur for most students (regardless of whether they report that they procrastinate). By the third session, all students are less likely to delay study and more likely to be studying regularly than during the first session.

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Table 1

Means and Significant Effects by Level of Procrastination (
on Academically-Related Trait Measures

Measure	High Procrastinators		Low Procrast	
	Females N=117	Males N=37	Females N=144	M N
AFFECTIVE				
Test Anxiety	23.40	20.35	19.26	1
COGNITIVE				
Attributions of Success				
Internal/External	2.07	2.08	1.86	
Stable/Unstable	3.04	2.86	2.58	
Controllable/ Uncontrollable	1.97	2.00	1.86	
Attributions of Failure				
Internal/External	3.08	3.23	3.12	
Stable/Unstable	3.95	4.06	4.02	
Controllable/ Uncontrollable	2.62	2.79	2.70	
BEHAVIORAL				
Self-Control	10.65	8.08	18.73	1

High Versus Low) and Gender

inators ales =80	Significant Effects	F Value df=1,377
7.75	Level of Procrastination**** Gender**	22.20 6.45
1.89	Procrastination**	7.27
2.77	Procrastination****	13.17
1.92		
	*p<.05 **p<.01 ***p<.005 ****p<.001	
3.05		
3.89		
2.65		
4.13	Procrastination**** Gender*	18.00 5.25

Table 2

Academic Procrastination as a Process Over Time: Means and
(High Versus Low), Gender, Across Sessions as Midterm Exams

Measure	Gender	High Procrastinators[1]			
		Session 1	Session 2	Session 3	S
AFFECTIVE					
Weekly State Anxiety	Females	56.85	56.96	55.54	
	Males	50.73	53.91	47.54	
Weekly Anxiety-Related Physical Symptoms	Females	23.11	21.68	25.26	
	Males	16.91	20.00	17.18	
COGNITIVE					
Weekly Midterm Appraisal	Females	3.91	3.68	3.59	
	Males	3.54	2.12	2.15	
Hindering Factor: Fear of Failure	Females	2.31	2.01	1.25	
	Males	1.40	1.18	0.49	
Hindering Factor: Task Aversiveness	Females	2.67	2.78	1.40	
	Males	2.24	1.54	0.70	
BEHAVIORAL					
Weekly Procrastination	Females	3.53	3.45	1.83	
	Males	3.00	2.18	1.00	
Weekly Study Behavior	Females	1.40	2.25	2.67	
	Males	1.61	3.85	3.86	

[1]There were 11 male and 54 female high procrastinators in ea

[2]There were 23 male and 37 female low procrastinators in eac

Significant Effects by Level of Procrastination
Approach

Low Procrastinators[2]		
ession 1	Session 2	Session 3
45.35	48.19	46.11
48.70	48.43	50.91
17.30	17.78	16.43
19.35	19.78	21.00
3.69	3.22	3.04
3.88	3.80	3.65
1.76	1.55	0.85
1.89	1.78	1.24
1.95	2.00	1.04
2.07	2.25	1.70
2.61	2.57	1.26
2.37	2.76	1.80
1.62	2.63	3.00
1.45	2.42	2.61

ch session.

session.

Table 2 (cont'd)

Measure	F Value	df	Significant Effects
AFFECTIVE			
Weekly State Anxiety	16.54 3.79	121 121	Procrastination **** Pro. X Gender *
Weekly Anxiety-Related Physical Symptoms	10.54 7.94 3.26	121 121 120	Procrastination **** Proc. X Gender** Proc. X Gender X Session*
COGNITIVE			
Weekly	7.32	120	Session****
Midterm Appraisal	13.15 4.22	121 120	Proc. X Gender**** Proc. X Gender X Session *
Hindering Factor: Fear of Failure	31.68 8.50	120 121	Session **** Proc. X Gender***
Hindering Factor: Task Aversiveness	31.65 7.57	120 121	Session **** Proc. X Gender**
BEHAVIORAL			
Weekly Procrastination	33.85 8.29 6.63	120 121 121	Session *** Procrastination*** Proc. X Gender **
Weekly Study Behavior	49.77 7.89	120 121	Session **** Proc. X Gender **

*p < .05
**p < .01
***p < .005
****p < .001

	Post-hoc Comparisons
	high proc. have more state anxiety female high proc. have more state anxiety than female low proc.
	high proc have more symptoms female high proc. have more symptoms than female low proc. female high proc. in Session 3 have more symptoms than male high proc. in Session 3
	exams viewed as less difficult, etc. as sessions progress no significant simple effects male high proc. viewed exams as less difficult, etc. during Sessions 2 & 3 than did all other groups
	fear of failure viewed as less of a hindering factor as sessions progress no significant simple effects
	task aversiveness viewed as less of a hindering factor in Session 3. no significant simple effects
	less proc. during Sessions 2 and 3 high proc. more likely to report weekly proc. female high proc. procrastinate more than female low proc.
	more study behavior as sessions progress no significant simple effects